THAT WHICH IS CLAIMED:

1. A method for forming a monolayer, comprising:

a) providing a composition comprising stripped phage;

b) immersing one end of a wettable surface into an aqueous subphase, wherein said wettable surface forms an angle of about 90-170 degrees to the surface of said subphase;

c) delivering said composition at a rate of about 0.02-4.0 ml per minute to said wettable surface to form a monolayer on said aqueous subphase; and

d) compressing said monolayer to a desired surface pressure.

2. The method of claim 1, wherein said wettable surface is a glass rod.

3. A monolayer formed by the method of claim 1.

4. An LB film formed by depositing at least one monolayer of claim 3 onto a substrate.

5. The LB film of claim 4, wherein said substrate comprises a piezoelectric crystal.

6. A method for evaluating the affinity of one or more ligands for a peptide of interest, comprising the steps of:

a) identifying said peptide of interest;

b) engineering a phage to express said peptide of interest on the surface of the phage;

c) vortexing an aliquot of said phage with chloroform to prepare stripped phage;

d) using said stripped phage to form a monolayer;

e) forming an LB film comprising at least one of said monolayer on the surface of a sensor to create an SPLSD;

f) obtaining a baseline signal from said SPLSD;

g) exposing said SPLSD to one or more ligands; and

h) quantifying the signal output from said SPLSD and comparing said signal output to said baseline signal.

7. The method of claim 6, wherein said LB film is prepared from monolayers formed from a method comprising the steps of:

a) providing a solution comprising stripped phage;

b) immersing one end of a wettable surface into an aqueous subphase, wherein said wettable surface forms an angle of about 90-170 degrees to the surface of said subphase;

c) delivering said solution at a rate of about 0.02-4.0 ml per minute to said wettable surface to form a monolayer on the surface of said subphase; and

d) compressing said monolayer to a desired surface pressure.

8. The method of claim 6, wherein said sensor comprises a piezoelectric crystal.

9. The method of claim 8, wherein said sensor is an acoustic wave sensor.

10. The method of claim 6, wherein the method of identifying said peptide of interest comprises the steps of:

a) constructing a bacteriophage library in which phage express random peptides on the phage surface;

b) exposing the resulting phage to a known ligand of interest; and

c) selecting said peptides of interest based on the binding of particular phage to said known ligand of interest.

11. A stripped phage ligand sensor device comprising:

a) a sensor comprising a piezoelectric crystal; and

b) at least one LB film layer essentially comprising stripped phage,

whereby the binding of ligands to said peptide of interest may be detected by a change in the signal output from said sensor.

12. A stripped phage ligand sensor device comprising:

a) a sensor comprising a piezoelectric crystal; and

b) a binding element comprising stripped phage.

13. The stripped phage ligand sensor device of claim 12, wherein said phage have been engineered to express a peptide of interest.

14. A method for analyzing a ligand of a probe, comprising the steps of:

a) assembling a stripped phage ligand sensor device;

b) exposing said device to a sample comprising said ligand; and

c) measuring the signal output from the stripped phage ligand sensor device,

wherein the binding of said ligand to said probe may be detected by a change in the signal output from said stripped phage ligand sensor device.

15. The method of claim 14, wherein the binding of said ligand to said probe is detected and wherein the amount of said ligand which is bound to said probe is evaluated quantitatively.

16. The method of claim 14, wherein said probe is known to bind to said ligand and said ligand is a microorganism.

17. The method of claim 16, wherein said ligand is selected from the group consisting of:

a) viruses;

b) bacteria; and

c) fungi.

18. The method of claim 17, wherein said ligand is *Bacillus anthracis* bacteria or spores.

19. The method of claim 14, wherein said ligand is a toxin.

20. The method of claim 14, wherein said sample is an air sample.